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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dominic Walsh

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WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

HEVEY, JOHN A

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,348	<b>Applicant(s)</b> WALSH ET AL.	
	<b>Examiner</b> JOHN A. HEVEY	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-46 is/are pending in the application.
- 4a) Of the above claim(s) 24-33, 43 and 44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 34-42, 45 and 46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/16/2005, 5/2/2006</u> .                                     | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group II, claims 34-42 and 45-46 in the reply filed on 3/11/2008 is acknowledged.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 45 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 45 and 46 recite the limitation "colloidal metal oxide." There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 34, 37, 39, and 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Helliker et al. (US4225346).

In regards to claims 34 and 37, Hilliker et al. ("Hilliker") teaches a method of making a porous nickel body comprising steps for mixing together an aqueous solution of modified cellulose and nickel powder, allowing said mixture to gel, then sintering the gel at 600-1200 C (see claims 1-2).

In regards to claim 39, the reference teaches the use of modified cellulose (a polysaccharide) such as an alkyl cellulose (see claim 5).

In regards to claims 45 and 46, Hilliker teaches the addition of nickel powder having an average particle size of 2.6 to 3.4 microns (see claim 3).

6. Claims 34-35, 37, 39, and 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoshino et al. (US6117592).

In regards to claims 34, Hoshino et al. ("Hoshino") teaches a method of making a porous metallic material comprising steps for forming an aqueous mixture of one or more metal powders, an organic solvent, a water-soluble resin binder selected from methyl cellulose, hydroxypropylmethyl cellulose, hydroxyethylmethyl cellulose, carboxymethyl cellulose ammonium, ethyl cellulose, and polyvinyl alcohol, a plasticizer, and water, and steps for forming a molded product, burning, and sintering (see example 1, columns 8-9).

Regarding claims 34 and 35, Hoshino teaches compositions comprising single metal powders including examples of nickel, copper, silver, gold, and others, as well as multiple-metal powders (relevant to claim 35) including examples such as Cu-Ni, Ni-Cr-Fe-Mn, and Ag-Cu (see Tables 1 and 2, col. 19).

In regards to claim 37, Hoshino teaches steps for burning at 300-700 C, and sintering at 800-1400 C (see col. 7, lines 43-50).

In regards to claim 39, Hoshino teaches examples including methyl cellulose, hydroxypropylmethyl cellulose, hydroxyethylmethyl cellulose, carboxymethyl cellulose ammonium, ethyl cellulose (see Table 1, col. 19).

In regards to claims 45-46, Hoshino teaches metal powder with an average particle size of 0.5—100 microns (see col. 5, lines 33-35) and teaches specific examples such as copper having an average particle size of 9 microns and silver of 45 microns (see Table 1, col. 19).

7. Claim 36 is rejected under 35 U.S.C. 102(a) as being anticipated by Zhang et al. "Starch Gel Templating of Spongelike Macroporous silicalite monoliths and mesoporous films" Chem. Mater. Published January 19, 2002.

Claim 36 differs from claims 34 and 35 in that it requires a solution comprising a colloidal metal oxide rather than a metal or metal oxide salt material as required in claims 34-35.

Zhang teaches a method of forming a porous monolith comprising steps for mixing colloidal silicalite (colloid metal oxide), potato starch (soluble carbohydrate polymer), and water, allowing the mixture to gel (solidify), and a step for calcining the mixture at 600 C (equivalent to baking) (see page 1370, Experimental).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 38 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helliker et al. (US4225346).

In regards to claim 38, Helliker teaches temperatures of 600-1200 C (see claim 2), and teaches an example of 900 C (see col. 2, line 64). It would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness.

In regards to claims 40-41, Helliker teaches cellulose concentration of 1-10 weight % (see col. 2, lines 24-26). The reference fails to disclose a range of metal concentration, but teaches an example of approximately 51 weight %

nickel reading on the required ranges (see col. 2, lines 51-65). It would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness.

11. Claims 38 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. (US6117592).

In regards to claim 38, Hoshino teaches steps for burning at 300-700 C, and sintering at 800-1400 C which could each be considered equivalent to a "baking" process as required by the instant claim(see col. 7, lines 43-50). It would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness.

In regards to claims 40-41, Hoshino teaches a composition including 0.5 - 20 weight% water-soluble binder and 5 - 80 weight% metal (see col. 2, lines 24-26) and specific examples of metal comprising 32%, 52%, 65% and others (see Tables 1 and 2, col. 19). It would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness.

12. Claims 34-42 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulaskey (US4102822).

Mulaskey teaches a method of making a porous catalyst, comprising steps for preparing a dough-like mixture of water, a cohesive component and a pulverable solid component, shaping said dough-like mixture, and drying and calcining at a temperature of 20-950 C (see claim 9). The reference teaches that said cohesive component is added in the amount of 0.2-30 parts by weight (see claim 9) and is an organic hydrocolloid-forming compound having a molecular weight above 1000, such as wheat flour, corn starch, guar gum, and polysaccharide gums such as xanthan gum (see col. 11, lines 53-65).

The reference teaches said pulverable solid component comprises particles of a refractory oxide and a catalytic agent, are added in the amount of 0.1-50 parts by weight, and at least 10 weight% of the particles have a size in the range of 0.1 micron (see claim 9).

Mulaskey teaches substantially the same methods as described in claims 34-36 and teaches overlapping ranges of temperature, composition, molecular weight, and particle size. Accordingly, it would have been obvious to one of ordinary skill in the art to select from the portion of the overlapping ranges. Overlapping ranges have been held to establish prima facie obviousness.

13. Claim 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. "Starch Gel Templating of Spongelike Macroporous silicalite monoliths and mesoporous films" Chem. Mater. 2002 as applied to claim 36 above, in view of Gilleland et al. (US652088).



Zhang et al. teaches the use of a potato starch, but is silent as to the molecular weight. Gilleland et al. teaches the use of a modified potato starch having a molecular weight of 100000 - 2000000 (see col. 6, lines 43-47). It is concluded that the potato starch as taught by Zhang would have inherently possessed a molecular weight overlapping with the required ranges. In the alternative, it would have been obvious to one of ordinary skill in the art to use a starch as taught by Gilleland and well known in the art, with an overlapping molecular weight. Zhang teaches that the pore size of a final material is dependent on the starch utilized in the method of making. One of ordinary skill in the art would have been motivated to use a starch well known in the art to reduce costs while optimizing the molecular weight to result in a desired pore size.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN A. HEVEY whose telephone number is (571)270-3594. The examiner can normally be reached on Monday - Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/  
Supervisory Patent Examiner, Art Unit 1793

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